

What is claimed is:

1. An inkjet print head, comprising:

an ink chip, having a surface and at least an ink slot formed through the ink chip;

at least a heater, formed on the surface of the ink chip;

5 a chamber layer, having at least a first ink channel and at least an ink chamber, formed on the surface of the ink chip, the ink chamber exposing the heater, the ink chamber connecting to the ink slot by the first ink channel, the ink chamber having a plurality of chamber walls with at least one of the chamber walls having a first area and a second area, the first area corresponding with the heater and an offset distance being
10 between the first area and the second area; and

a nozzle plate, having at least a nozzle formed therein, being positioned on the chamber layer of the chip so that the nozzle is above the heater.

2. The inkjet print head of claim 1, wherein the offset distance from the first area of the chamber wall to the heater is between about 1 μ m to about 38 μ m.

15 3. The inkjet print head of claim 1, wherein the print head further comprises at least an island formed on the surface of the ink chip between the first ink channel and the ink slot.

4. The inkjet print head of claim 3, wherein the chamber layer further comprises a pair of first ink-channeling surfaces with each first ink-channeling surface located on
20 each side of the first ink channel.

5. The inkjet print head of claim 4, wherein the island has a pair of second ink-channeling surfaces such that the first ink-channeling surfaces and the second ink-channeling surfaces together form a pair of second ink channels that joint with the first ink channel.

6. The inkjet print head of claim 5, wherein each first ink-channeling surface and its corresponding second ink-channeling surface are parallel to each other.

7. The inkjet print head of claim 1, wherein the nozzle is not over the first area of the chamber wall.

5 8. An inkjet print head, comprising:

an ink chip, having a surface and at least an ink slot formed through the ink chip;

at least a heater, formed on the surface of the ink chip;

a chamber layer, having at least a first ink channel and at least an ink chamber, formed on the surface of the ink chip, the ink chamber exposing the heater, the ink chamber connecting to the ink slot by the first ink channel, the ink chamber having a plurality of chamber walls and at least one of the chamber walls caves in to form at least a collecting room; and

a nozzle plate, having at least a nozzle that is formed through the nozzle plate positioned on the chamber layer, wherein the nozzle is above the heater.

15 9. The inkjet print head of claim 8, wherein the print head further comprises an island formed on the surface of the ink chip between the first ink channel and the ink slot.

10. The inkjet print head of claim 9, wherein the chamber layer further comprises a pair of first ink-channeling surfaces with each first ink-channeling surface being positioned on each side of the first ink channel.

20 11. The inkjet print head of claim 10, wherein the island has a pair of second ink-channeling surfaces such that the first ink-channeling surfaces and the second ink-channeling surfaces together form a pair of second ink channels that join with the first ink channel.

12. The inkjet print head of claim 11, wherein each first ink-channeling surface and its corresponding second ink-channeling surface are parallel to each other.

13. The inkjet print head of claim 8, wherein the nozzle is not positioned directly above the collecting room.

5 14. An inkjet print head, comprising:

an ink chip, having a surface and at least an ink slot formed through the ink chip;

at least a heater, formed on the surface of the ink chip; and

a nozzle plate, having at least a first ink channel, at least an ink chamber and at least a nozzle, positioned on the surface of the ink chip, the ink chamber exposing the heater and the ink chamber connecting to the ink slot by the first ink channel, the ink chamber having a plurality of chamber walls and at least one of the chamber walls having a first area and a second area, the first area corresponding to the heater and an offset distance being between the first area and the second area, and the nozzle being above the heater and corresponding to the ink chamber.

15 15. The inkjet print head of claim 14, wherein the offset distance from the first area of the chamber wall to the heater is between about 1 μ m to about 38 μ m.

16. The inkjet print head of claim 14, wherein the nozzle plate further comprises a projection protruding from the bottom surface of the nozzle plate between the first ink channel and the ink slot.

20 17. The inkjet print head of claim 16, wherein the nozzle plate further comprises a pair of first ink-channeling surfaces on each side of the first ink channel, and the projection of the nozzle plate further comprises a pair of second ink-channeling surfaces such that the first ink-channel surfaces and the second ink-channeling surfaces together form a pair of second ink channels that join to the first ink channel.

18. The inkjet print head of claim 17, wherein each first ink-channeling surface and its corresponding second ink-channeling surface are parallel to each other.

19. The inkjet print head of claim 14, wherein the nozzle is not above the first area of the chamber wall.

5 20. An inkjet print head, comprising:

an ink chip with a surface and at least an ink slot formed through the ink chip;

at least a heater, formed on the surface of the ink chip;

10 a nozzle plate, having at least a first ink channel, at least an ink chamber and at least a nozzle, positioned on the surface of the ink chip, the ink chamber exposing the heater and the ink chamber connecting to the ink slot by the first ink channel, the ink chamber having a plurality of chamber walls, at least one of the chamber walls caving in to form at least a collecting room, and the nozzle being above the heater and corresponding to the ink chamber.

15 21. The inkjet print head of claim 20, wherein the nozzle plate further comprises a projection protruding from the bottom surface of the nozzle plate between the first ink channel and the ink slot.

20 22. The inkjet print head of claim 20, wherein the nozzle plate further comprises a pair of first ink-channeling surfaces on each side of the first ink channel and the projection of the nozzle plate further comprises a pair of second ink-channeling surfaces such that the first ink-channel surfaces and the second ink-channeling surfaces together form a pair of second ink channels that join to the first ink channel.

23. The inkjet print head of claim 22, wherein each first ink-channeling surface and its corresponding second ink-channeling surface are parallel to each other.

24. The inkjet print head of claim 20, wherein the nozzle is not above the collecting room.

25. An inkjet print head, comprising:

an ink chip, having a top surface and an opposing bottom surface, and having a

5 first outer edge along a periphery of the chip;

at least a heater, formed on the top surface of ink chip;

a chamber layer, having at least a first ink channel and at least an ink chamber,

formed on the top surface of the ink chip, the ink chamber exposing the heater, the ink

chamber connecting with an ink reservoir by the first ink channel, the first ink channel

10 allowing ink to flow from the ink reservoir, around the first outer edge of the chip, and

to the ink chamber, the ink chamber having a plurality of chamber walls with at least

one of the chamber walls having a first area and a second area, the first area

corresponding with the heater and an offset distance being between the first area and the

second area; and

15 a nozzle plate, having at least a nozzle formed therein, being positioned on the

chamber layer of the chip so that the nozzle is above the heater.

26. An inkjet print head, comprising:

an ink chip, having a top surface and an opposing bottom surface, and having a

first outer edge along a periphery of the chip;

20 at least a heater, formed on the top surface of ink chip; and

a nozzle plate, having at least a first ink channel, at least an ink chamber and at

least a nozzle, positioned on the surface of the ink chip, the ink chamber exposing the

heater and the ink chamber connecting with an ink reservoir by the first ink channel, the

first ink channel allowing ink to flow from the ink reservoir, around the first outer edge

of the chip, and to the ink chamber, the ink chamber having a plurality of chamber walls with at least one of the chamber walls having a first area and a second area, the first area corresponding with the heater and an offset distance being between the first area and the second area to form at least one collecting room, the nozzle being above the heater and
5 corresponding to the ink chamber.